

REMARKS

Claim 1 is amended to include limitations of claim 5, which is now canceled, and claim 18 is amended to include similar functional limitations in an apparatus claim. Claims 6 and 7 are amended to correct dependencies, and claims 8 and 13 are amended to correct typographical errors. The amendments are made for purposes of expediting prosecution and not for purposes of patentability. Applicant reserves the right to pursue subject matter of the original claims (prior to amendment) and subject matter of the canceled claims in subsequent prosecution.

New claim 21 depends from claim 1 and is added to further claim the invention. The claim is thought to be patentable over the prior art for at least the reasons set forth below for claim 1. In addition, the added limitations do not appear to be suggested by the prior art.

Claims 1-4 and 6-21 remain for consideration. Reconsideration and allowance of the application is respectfully requested.

The Office Action does not establish that claims 1-4, 11-12, 14 and 16-20 are anticipated under 35 U.S.C. §102(b) by "White" ('Reconfigurable, Retargetable Bignums: A Case Study in Efficient, Portable lisp System building' by White). The rejection is respectfully traversed because the Office Action does not show that White teaches all the limitations of the claims. However, the rejection is now moot in view of the amendments made to claims 1 and 18.

Furthermore, various limitations of the claims are not shown to be taught by White. For example, claim 12 includes limitations of identifying an optimal set of most-significant bits of the dividend and a set of least-significant bits of the dividend as a function of a number of bits that represent the dividend and a number of bits that represent the divisor. The Office Action cites White's teachings at p. 178, col. 1, para. 3 in alleging that the limitations of claim 12 are anticipated. However, there is no apparent suggestion in these teachings of the specific limitations of how a set of most significant bits of the dividend and a set of least significant bits of the dividend are identified. Furthermore, there is no apparent suggestion that the identification is made

as a function of the number of bits that represent the dividend and the number of bits that represent the divisor. There is no apparent suggestion by White's general teachings of the specific claim limitations.

The Office Action fails to establish that claims 5-10 are unpatentable under 35 U.S.C. §103(a) over White in view of "Owicki" (US patent 5,446,901 to Owicki et al.). The rejection is respectfully traversed because the Office Action fails to show that all the limitations are suggested by the references, fails to provide a proper motivation for modifying the teachings of White with teachings of Owicki, and fails to show that the combination could be made with a reasonable likelihood of success.

The limitations of claim 1, which is amended to include limitations of claim 5 and additional limitations, are not shown to be taught or suggested by the White-Owicki combination. The limitations include establishing a plurality of available storage nodes available for allocation to large-integer data; and allocating a subset of the plurality of available storage nodes for a large-integer variable, the subset being an allocated plurality of storage nodes, and storing a numerical value in the allocated plurality of storage nodes and forming a linked list of the allocated plurality of storage nodes.

The cited teachings of White involve garbage collection of storage objects that are no longer referenced or accessible to any process and return to memory storage the memory allocated to these inaccessible storage objects (col. 1, l. 15-20). Thus, the storage objects are not returned to any pool of storage objects, but the memory allocated to the objects is returned to the system. Furthermore, there is no apparent suggestion of storing the large integer in a plurality of storage nodes that are in a linked list. Thus, the Office Action does not show that the White-Owicki combination suggests the limitations of claim 1.

The alleged motivation for modifying White with teachings of Owicki does not support a *prima facie* case of obviousness. The alleged motivation states that "it would have been obvious ... to implement memory allocation/de-allocation in White's invention using the teachings of Owicki ... because one of ordinary skill in the art would have been motivated to allocate and de-allocate memory to and from objects being created and destroyed." The alleged motivation is improper because no evidence is presented to indicate how or whether White's management of storage for "bignums" is

deficient or in any way in need of improvement. Furthermore, Owicki's teachings suggest garbage collection for return to system memory, not storage nodes that are available for allocation to a large integer. Further still, the general motivation of allocating and deallocating memory to objects does not suggest a particular modification of White consistent with the claim limitations. Therefore, the alleged motivation is unsupported by evidence and improper.

Claims 6, 7, 8, and 9 further refine the limitations of claim 1 as discussed above, and the Office Action fails to show that these claims are unpatentable over the White-Owicki combination for at least the reasons set forth above.

As to claim 10, the Office Action fails to show that the limitations are inherent in White. The limitations of claim 10 include overloading language-provided memory allocation and deallocation operators with large-integer operators that allocate and deallocate storage nodes. The cited portions of White and features of COMMON LISP do not suggest these limitations. Specifically, the teaching that COMMON LISP is designed to hide the distinction between Bignums and Fixnums suggests arithmetic operations are seamless. There is no necessary implication that the memory allocation and deallocation operators are overloaded. White does not necessarily overload language-provided memory allocation and deallocation operators, and the Office Action does not provide evidence to support this allegation.

The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993); "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.' " *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (citations omitted). "In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." *Ex parte Levy*, 17

USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original) (MPEP 2112). Therefore, the Office Action has not shown that the limitations of claim 10 are inherent in White.

Claim 18 is an apparatus claim in means-plus-function format and includes limitations similar to those of canceled claim 5. The functional limitations are not shown to be suggested by the White-Owicki combination as explained above. Furthermore, the structure described in the specification is not shown to be suggested by the White-Owicki combination.

The rejection of claims 5-10 over the White-Owicki combination should be withdrawn because the Office Action fails to show all the limitations are suggested by the combination, fails to provide a proper motivation for combining the references, and fails to show that the combination could be made with a reasonable likelihood of success.

The Office Action fails to show that claim 13 is unpatentable under 35 U.S.C. §103(a) over White in view of "Burnikel" ("Fast Recursive Division" by Burnikel et al.). The rejection is respectfully traversed because the Office Action fails to show that all the limitations are suggested by the references, fails to provide a proper motivation for modifying the teachings of White with teachings of Burnikel, and fails to show that the combination could be made with a reasonable likelihood of success.

Claim 13 includes limitations of identifying an optimal set of most-significant bits of the dividend and a set of least-significant bits of the dividend as a function one-half a difference between the number of bits that represent the dividend and the number of bits that represent the divisor. The cited teachings of Burnikel contain no apparent suggestion of using any difference of values to identify an optimal set of most-significant and least-significant bits of the dividend. Furthermore, the cited teachings suggest splitting the dividend into four parts, each part having a length of $n/2$ (the dividend is $2n$ digit number). There is no apparent teaching of the specifically claimed identifying an optimal set of most-significant bits of the dividend and a set of least-significant bits of the dividend as a function one-half a difference between the number of bits that represent the dividend and the number of bits that represent the divisor. Therefore, the Office Action fails to show that the White-Burnikel combination teaches

all the limitations of claim 13.

The rejection of claim 13 over the White-Burnikel combination should be withdrawn because the Office Action fails to show all the limitations are suggested by the combination, fails to provide a proper motivation for combining the references, and fails to show that the combination could be made with a reasonable likelihood of success.

The Office Action fails to establish that claims 15-16 and 19 are unpatentable under 35 U.S.C. §103(a) over White in view of "Anderson" (US patent 5,619,711 to Anderson). The rejection is respectfully traversed because the Office Action fails to show that all the limitations are suggested by the references, fails to provide a proper motivation for modifying the teachings of White with teachings of Anderson, and fails to show that the combination could be made with a reasonable likelihood of success.

Claim 15 depends from claim 1 and includes limitations of transferring data associated with temporary variables of the large-integer datatype by moving pointers to the data. The cited portion of Anderson suggests a linked list for storage of an array, and teaches away from the claimed transferring by moving pointers. Specifically, Anderson teaches "copying of an APN to new memory area is more complex for linked structures." Thus, Anderson teaches away from transferring data by moving pointers to the data.

The alleged motivation for modifying White with teachings of Anderson is unsupported by evidence and improper. The alleged motivation states that "it would have been obvious ... to utilize the techniques taught in Anderson ... when updating large-integer-data as disclosed in White ... to avoid fragmentation as taught in Anderson." The Office Action fails to present any evidence that White is susceptible to fragmentation. Therefore, the alleged motivation is conclusory and improper.

Claim 16 depends from claim 1, and claim 19 depends from claim 18. Thus, the Office Action does not establish that claims 16 and 19 are unpatentable for at least the reasons set forth above for claim 1 over the White-Owicki combination.


The rejection of claims 15-16 and 19 over the White-Anderson combination should be withdrawn because the Office Action fails to show all the limitations are suggested by the combination, fails to provide a proper motivation for combining the

references, and fails to show that the combination could be made with a reasonable likelihood of success.

No extension of time is believed to be necessary for consideration of this response. However, if an extension of time is required, please consider this a petition for a sufficient number of months for consideration of this response. If there are any additional fees in connection with this response, please charge Deposit Account No. 50-0996 (USYS.030PA).

Respectfully submitted,

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